

Title (en)

METHOD FOR REDUCING CORROSION IN AN OIL REFINERY INSTALLATION

Title (de)

VERFAHREN ZUR VERRINGERUNG DER KORROSION IN EINER INSTALLATION DER ÖLREFFINERIE

Title (fr)

PROCÉDÉ DE RÉDUIRE LA CORROSION DANS UNE INSTALLATION DE RAFFINERIE À HUILE

Publication

EP 3640627 A3 20200729 (EN)

Application

EP 19215004 A 20111130

Priority

- US 2011062529 W 20111130
- US 95785410 A 20101201
- EP 11844696 A 20111130

Abstract (en)

The invention provides a method for determining the amount of various materials in a liquid sample positioned in an apparatus (100). Because the apparatus is particularly resilient it can be used repeatedly with very harsh liquid samples such as boot water from an oil refinery. The apparatus is used in a method of reducing corrosion involving determining at least one of: the pH, amount of chloride, and/or amount of iron in the sample. The optical property can be colorimetric, fluorescent or both and result from adding dyes, complexing agents, turbidity inducing compounds, and other optically effecting reagents to the sample. Because the measurements are concentration and volume independent they can be done continuously, quickly, and avoid the inconvenient start and stop procedures in prior art measurement regimens. The method further includes using a BDD cell to oxidize materials (such as sulfoxy compounds) that would otherwise interfere with the optical analysis and/or to sparge the sample with gas.

IPC 8 full level

G01N 21/75 (2006.01); **A61B 5/145** (2006.01); **A61B 5/1459** (2006.01); **G01N 21/05** (2006.01); **G01N 21/31** (2006.01); **G01N 21/64** (2006.01); **G01N 21/77** (2006.01); **G01N 21/80** (2006.01); **G01N 31/22** (2006.01); **G01N 33/18** (2006.01); **G01N 35/08** (2006.01)

CPC (source: EP KR RU US)

G01N 21/31 (2013.01 - KR); **G01N 21/6428** (2013.01 - US); **G01N 21/643** (2013.01 - EP US); **G01N 21/75** (2013.01 - KR); **G01N 21/77** (2013.01 - EP RU); **G01N 21/7703** (2013.01 - US); **G01N 21/80** (2013.01 - EP US); **G01N 35/08** (2013.01 - EP US); **G01N 21/05** (2013.01 - US); **G01N 21/82** (2013.01 - EP US); **G01N 31/22** (2013.01 - EP US); **G01N 31/221** (2013.01 - US); **G01N 33/1813** (2013.01 - EP US); **G01N 2021/6421** (2013.01 - US); **G01N 2021/6491** (2013.01 - EP US); **G01N 2021/7786** (2013.01 - EP); **Y10T 436/11** (2015.01 - EP US); **Y10T 436/193333** (2015.01 - EP US); **Y10T 436/25125** (2015.01 - EP US)

Citation (search report)

- [YD] US 5326482 A 19940705 - LESSARD RONALD B [US], et al
- [YA] US 5629212 A 19970513 - HERMAN PATRICK [FR], et al
- [AD] US 5324665 A 19940628 - LESSARD RONALD B [US]
- [A] JP S51114372 A 19761008 - NIPPON OIL CO LTD
- [Y] KATIE WATERSTON ET AL: "Electrochemical oxidation of sulfide ion at a boron-doped diamond anode", JOURNAL OF APPLIED ELECTROCHEMISTRY, KLUWER ACADEMIC PUBLISHERS, DO, vol. 37, no. 3, 30 November 2006 (2006-11-30), pages 367 - 373, XP019480549, ISSN: 1572-8838
- [Y] JAMIE HANER ET AL: "Electrochemical oxidation of sulfide ion at a Ti/IrO₂-Ta₂O₅ anode in the presence and absence of naphthenic acids", JOURNAL OF APPLIED ELECTROCHEMISTRY, KLUWER ACADEMIC PUBLISHERS, DO, vol. 39, no. 10, 26 March 2009 (2009-03-26), pages 1733 - 1738, XP019749427, ISSN: 1572-8838, DOI: 10.1007/S10800-009-9873-7
- [YA] KALINA D W ET AL: "Indirect hydrogen sulfide conversion-I. An acidic electrochemical process", INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, ELSEVIER SCIENCE PUBLISHERS B.V., BARKING, GB, vol. 10, no. 3, 1 January 1985 (1985-01-01), pages 157 - 162, XP025414057, ISSN: 0360-3199, [retrieved on 19850101], DOI: 10.1016/0360-3199(85)90022-9
- [A] MA G ET AL: "Direct splitting of H²S into H² and S on CdS-based photocatalyst under visible light irradiation", JOURNAL OF CATALYSIS, ACADEMIC PRESS, DULUTH, MN, US, vol. 260, no. 1, 15 November 2008 (2008-11-15), pages 134 - 140, XP025586747, ISSN: 0021-9517, [retrieved on 20081016], DOI: 10.1016/J.JCAT.2008.09.017

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

US 2012142113 A1 20120607; **US 9134238 B2 20150915**; AR 084073 A1 20130417; BR 112013013464 A2 20191210; BR 112013013464 B1 20210824; CA 2820609 A1 20120607; CA 2820609 C 20190312; CN 103238060 A 20130807; CN 103238060 B 20160420; EP 2646806 A2 20131009; EP 2646806 A4 20170607; EP 3640627 A2 20200422; EP 3640627 A3 20200729; EP 3640627 B1 20230719; EP 3640627 C0 20230719; ES 2951568 T3 20231023; JP 2013545988 A 20131226; JP 5925211 B2 20160525; KR 101984674 B1 20190531; KR 20130141569 A 20131226; MX 2013006242 A 20140730; MX 343354 B 20161103; RU 2013124970 A 20150110; RU 2600510 C2 20161020; SG 190897 A1 20130731; WO 2012075076 A2 20120607; WO 2012075076 A3 20121004

DOCDB simple family (application)

US 95785410 A 20101201; AR P110104485 A 20111201; BR 112013013464 A 20111130; CA 2820609 A 20111130; CN 201180057974 A 20111130; EP 11844696 A 20111130; EP 19215004 A 20111130; ES 19215004 T 20111130; JP 2013542118 A 20111130; KR 20137014106 A 20111130; MX 2013006242 A 20111130; RU 2013124970 A 20111130; SG 2013040746 A 20111130; US 2011062529 W 20111130